Alberta Energy

ANNUAL REPORT 1988-1989

Alberta
ENERGY

Office of the Minister

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April 1, 1990

The Honourable Helen Hunley
Lieutenant Governor of the Province of Alberta

Your Honour

I have the honour to submit the Annual Report of Alberta Energy for the fiscal year ended March 31, 1989.

Respectfully submitted,

Rick Orman
Minister of Energy

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Minister's Message

1988-89 was a very active year for the Alberta Department of Energy and the Alberta oil and gas industry. Conventional drilling reached the fourth-highest level in the history of the province. In the heavy oil and oil sands sector, an agreement was signed to fund and construct the Lloydminster Bi-Provincial Upgrader and a Statement of Principles was negotiated for the OSLO Alberta Oil Sands Project. Natural gas sales volumes continued to increase, led by a 30 per cent growth in exports.

However, the high level of activity belied weaker international oil prices. Exploration and development budgets were established on the basis of stronger prices in 1987 and continued eligibility for three-year royalty holidays on eligible oil wells. Drilling budgets were maintained at higher levels despite the lower oil prices, which fell as low as U.S. $13.75 in October of 1988, thus reducing corporate cash flow.

In October of 1988, the Honourable Neil Webber, as Minister of Energy, announced changes to the fiscal system for the conventional industry representing approximately $200 million in additional incentives. These changes included extension of the eligibility period to April 30, 1989, for earning a three-year royalty holiday and maintenance of the Alberta Royalty Tax Credit at a rate of 75 per cent of royalties paid to a cap of $3 million until January 1, 1990. A commitment to a long-term price-sensitive ARTC program was fulfilled during 1989.

International prices have increased following the OPEC accord of November 1988. Nonetheless, industry budgets were established on the basis of the lower prices of 1988. Despite changes to the incentive programs, conventional industry activity by year end fell significantly.

The level of activity in the conventional industry was mirrored by substantial interest in development of Alberta's heavy oil and oil sand resources. Negotiations between Husky Oil Limited and the Governments of Canada, Alberta and Saskatchewan resulted in the signing of a definitive agreement on September 2, 1988, to construct the Lloydminster Bi-Provincial Upgrader. The $1.267-billion Upgrader will produce 46 000 barrels of synthetic crude oil per day using heavy oil and bitumen as feedstock. This represents a unique opportunity for three governments to participate with the private sector. It also increases the value of heavy oil and bitumen produced in Alberta and Saskatchewan and diversifies the market opportunities for that production, while generating economic spin-off benefits in terms of the services and supplies required to build and operate the facility. Engineering, contracting and construction proceeded on schedule throughout the year and continued in 1989.

On September 24, 1988, Premier Don Getty, the Right Honourable Joe Clark, and members of the Other Six Leases Operation (OSLO) consortium announced a statement of principles for the funding of the $4.1-billion OSLO Alberta Oil Sands Project, located about 80 kilometres north of Fort McMurray. The OSLO project will be the third fully integrated oil sands project in the region. Initially it will produce 77 000 barrels of synthetic crude oil per day, with production beginning in 1997.

Alberta Oil Sands Equity will manage the Alberta Government's 10 per cent interest in the project. In addition, the Alberta and federal governments are providing development incentives, loan guarantees, interest assistance and temporary financing facilities, in return for net profit interests and, for Alberta, ownership royalties.

Since the Statement of Principles was signed, project engineering is proceeding on schedule and all parties are working to finalize the definitive OSLO agreement.

In addition to the Lloydminster Bi-Provincial Upgrader and the OSLO project in developing oil supply, markets for Alberta natural gas continued to be dynamic. The process of deregulation continued, with successful renegotiation of the system gas contracts between Western Gas Marketing Limited and Canadian local distribution companies. Increasing volumes of natural gas are being sold by direct sales. Overall growth in gas sales volumes are straining pipeline capacity, resulting in increased attention to pipeline expansion in Alberta, throughout Canada and into export markets.

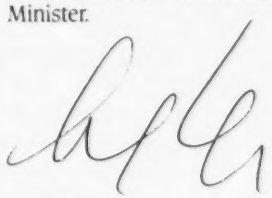
In October 1988, implementation of Alberta's ethane policy was announced. The policy provides for non-discriminatory access to ethane required for development of ethane-based petrochemical processing in Alberta. Following the announcement of the ethane policy, a number of petrochemical companies have announced expansion plans for Alberta.

Throughout the year, the Alberta government continued to support research, development and demonstration efforts to improve the efficiency and competitiveness of the production, transportation and use of Alberta's low-sulphur coal. Efforts focused on co-operation with other provincial governments and the federal government in the Action Committee on Western Canadian Low Sulphur Coal to Ontario. In addition, sales and exploring potential markets for Alberta's metallurgical and thermal coal formed a major part of a tour to Japan, Korea and Hong Kong by the Minister of Energy in November 1988.

During 1988-89, global environmental concerns became one of the key issues facing Alberta's energy industry. Environmentalists, the public, industry and governments all consider protection of our environment to be one of the critical issues in the years ahead.

In connection with the impact of energy interests on the environment, the Alberta Government participated in the June 1988 Toronto Conference on the Changing Atmosphere. At the August 1988 Energy Minister's Meeting in Quebec City, it was agreed to strike a federal/provincial task force to review the recommendations from the Toronto conference. Parallel to the task force activities, Alberta took the initiative to prepare an inventory on energy-related CO_2 emissions for Alberta. Through consultation with governments, industry and environmental groups, the Alberta Government will continue to examine methods of ensuring environmental protection and seek to determine the most optimal strategy to address environmental concerns.

On April 14, 1989, I was appointed Minister of Energy. I want to congratulate my predecessor, Dr. Neil Webber, and the Department of Energy on a year of activity and accomplishment in 1988-89. I also want to thank the department for its expertise, professionalism and diligence not only during 1988-89, but also since I have been Minister.



Rick Orman
Minister

Deputy Minister's Message

As Deputy Minister of Energy I am proud of the accomplishments of the members of the Department of Energy this past year in fulfilling our on-going objectives, adapting to new developments and anticipating emerging challenges. The Department of Energy is responsible for managing Alberta's energy and mineral resources. It provides analysis of developments pertinent to Alberta's energy and minerals sector, advice on relevant policies and administration of the fiscal and regulatory framework for energy and mineral's development in the province.

The Department's primary mandate is to administer a fiscal and regulatory framework which encourages orderly development and upgrading of Alberta's resources consistent with optimizing the economic return to Albertans, as owners of the resource, the economic benefits from expanded industry activity, and the impact on the environment of resource development and use. It performs four fundamental functions: 1) Leasing mineral rights and administering mineral agreements on behalf of the Crown; 2) Providing analysis and advice on issues affecting Alberta's energy and mineral resource development, value and industries; 3) Advising, establishing and administering the royalty and fiscal regime to ensure a fair return to Albertans as owners of the resource, while encouraging continued development including the negotiation of specific fiscal regimes for major energy projects; 4) Administering energy-related research, development and conservation programs.

In fulfilling these basic responsibilities in the last year, the Department made substantial progress in achieving a number of specific objectives related to developments and opportunities in the individual energy sectors.

Two major goals provided the focus for the oil and natural gas sector: the commitment to deregulation of energy markets and greater reliance on market forces, and encouragement of maximum development and upgrading of Alberta's resources within the province. Deregulation of oil markets is complete; substantial progress has been made toward reliance on market forces to determine natural gas production and marketing decisions. The efforts of departmental personnel to address regulatory and other barriers in the gas markets were rewarded by progress in private sector renegotiations of system gas sales and increases in direct sales and export volumes. During the year, the Department worked with industry to encourage development and upgrading projects including upgrading of heavy oil, petrochemical development of gas and gas liquids and enhanced sulphur extraction.

In the oil sands and heavy oil sector the Department continued to work with industry to encourage commercial facilities, to negotiate specific fiscal arrangements to share the risks and participate in the returns from major projects and to encourage research, development, demonstration and commercialization of new technologies for heavy oil and oil sands development. In particular, the Department provided analysis and advice in the negotiations leading to agreement on the Lloydminster upgrader and OSLO oil sands projects. The Department continues to monitor progress on the projects, to finalize documentation for the OSLO agreement and to evaluate new opportunities.

The Department's objective in the coal sector is to participate in research, development and demonstration to improve the competitiveness of Alberta's low-sulphur coals in order to encourage continued development and use of this enormous resource in a manner compatible with the environment. The Department has been active in cooperative research efforts with the industry and other governments.

Overall, during 1988-89, the department has adhered to the principle of maintaining a stable yet responsive fiscal and regulatory regime for Alberta's energy and mineral resources. The Department evaluated changes in the economic environment affecting the industry and consulted with industry before recommending adjustments to ensure that the administration of the fiscal and regulatory framework continued to meet the government's objectives.

In April 1989, the Honourable Rick Orman was appointed Minister of Energy. Upon his appointment, the Minister emphasized his expectation that the Department would continue extensive consultation with the energy and mineral industries and other interested parties, and maintain the tradition of partnership in development. At the same time the Minister outlined a number of issues which would be of increased importance for the Department, including: energy and the environment and developments in new and expanded natural gas markets.

During 1988-89, the Department anticipated emerging issues and reacted to changes in the energy environment. The process of anticipation, analysis, reaction and preparation for new challenges is on-going. In the next fiscal year further departmental reorganization will increase the ability of the Department to respond to environmental, efficiency and technological issues.

Based on the performance of the Department in 1988-89, I am confident that the department will continue to fulfil its fundamental mandate of managing Alberta's energy and mineral resources in a manner that accepts and responds to the new challenges involved in maximizing Alberta's benefits from development of our energy and mineral resources in an ever-changing economic and social context.

Myron Kanik
Deputy Minister

Alberta Energy Department Structure

Priorities of the government and changes in the energy environment led to a departmental restructuring that began in 1987-88 and continued into 1988-89. A number of positions were redefined on April 1, 1988. Management began to mobilize its resources in applying the new structure to the Department's mission and objectives. Since April 1, 1988, six divisions have made up the Department: Projects and Supply; Policy Analysis and Planning; Mineral Resources; Mineral Revenues; Scientific and Engineering Services and Research; and Finance and Administration. They report through their respective heads to the Deputy Minister (Figure 1). Finance and Administration reports to the Deputy Minister of Energy and also supports the Department of Forestry, Lands and Wildlife. Legal services are provided by staff seconded on a full-time basis from the Attorney General's department.

Department Organization

Projects and Supply Development Division

is responsible for financial and technical evaluation of oil sands and upgrading projects, and for economic evaluation and analysis of the costs of finding and developing conventional oil, gas and coal. It is also responsible for long- and short-term strategic planning to determine the economic and technical feasibility of development projects in Alberta's oil and gas industries, oil sands and coal fields. It advises on the appropriate government involvement or investment in each project and recommends a specific fiscal treatment of royalties, taxes, grants and incentives.

Policy Analysis and Planning Division

is responsible for analysis of oil and gas markets, assessment of regulatory and legislative issues, energy price and demand forecasts, and assessment and reports on industry. It communicates to the public the importance of energy resources and government energy programs, and promotes energy efficiency and conservation.

Mineral Revenues Division

is responsible for the management of programs established to generate and collect mineral revenues and for providing the assurance that these programs are consistent with provincial policies and the business environment. It manages a number of incentive programs that enhance exploration for, and extraction of, minerals in Alberta.

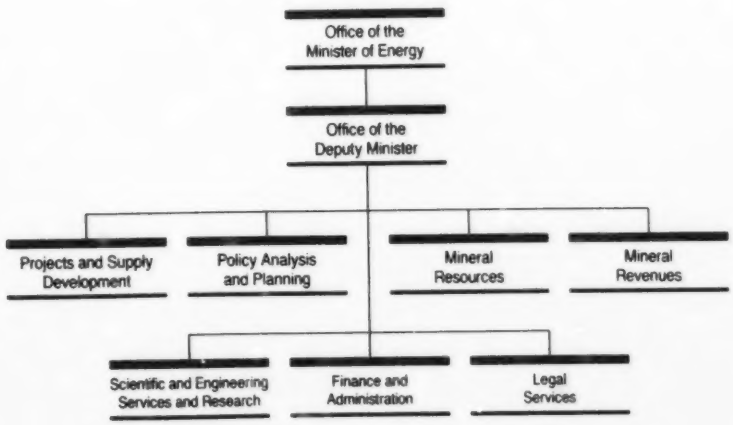
Mineral Resources Division

is responsible for developing and administering energy and other mineral leasing policies that are favourable for resource identification, delineation and development and that optimize Alberta's mineral supply and economic, environmental, and employment interests. As well, the Division ensures that the Alberta Geological Survey effectively and efficiently supports provincial geological requirements, and consults with other governments on leasing-related and geological survey policies and administrative practices.

Scientific and Engineering Services and Research Division

manages and channels the federal and provincial government's funding within the province for research and development of sources of energy other than oil. It also provides technical advice and support to the department.

Figure 1
Structure of the Department of Energy



Finance and Administration, and Legal Services

These divisions provide services to the Departments of Energy and Forestry, Lands and Wildlife.

Financial Services
provides an administrative service to other divisions within the departments by recording all revenue received, accounting for all receivables and processing all payments. Further responsibility involves the development of a departmental expenditure reporting and forecasting system (DEFIS) to allow the department to better estimate expenditures and prevent overexpenditure of budgets.

Automated Information Systems
provides technical expertise and leadership in automated data and office automation systems. This area is committed to increasing departmental productivity through office automation facilities, enhancing systems development capabilities through increased use of automated tools, and expanding information processing technology for managing information resources.

General Services
provides a full range of support services to the operating divisions. It is responsible for file maintenance and control, including a computerized file location and control system; creation of records systems, including maintenance of a computerized database; mail and messenger services; and micrographics. It is also responsible for the departmental reference library, editorial review of documents, specialized graphics and forms, printing and duplication, and providing information and services through two information centres. It operates the Land Status Automated System (LSAS) and supplies surface and subsurface data regarding public land to all provincial government departments, private industry and the general public. It provides building maintenance, construction, tenant services, parking coordination, furniture acquisition and coordination of design for optimal space use within the departments.

Human Resources
provides services to the departments in the areas of recruitment, classification, wage and salary administration, employee relations, staff and organizational development, security, and occupational health and safety. These are provided through the office in Edmonton and the Forest Technology School in Hinton.

Internal Audit
examines financial activities to ensure internal accounting and operating controls are functioning properly. Emphasis is placed on reviewing techniques used by management to evaluate program efficiency and effectiveness to guarantee results are consistent with objectives.

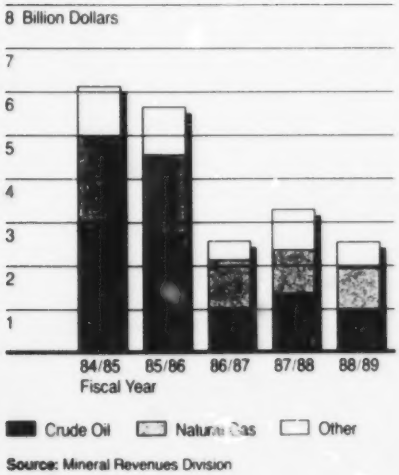
Legal Services Division
provides legal advice and assistance on all matters pertaining to energy.

Revenues

Gross Energy Revenue

Government revenue from all mineral resources (predominantly oil and natural gas) (Figure 2) is derived mainly from royalties (77% in 1988-89) and bonuses and sales of Crown agreements (18% in 1988-89). In 1988-89, mineral resource revenue accounted for about 28 per cent of the provincial government's overall revenue. In total, 1988-89 revenues from mineral resources generated $2.56 billion, compared to $3.32 billion in 1987-88. This difference in revenue resulted from a sharp decline in the world price of oil experienced in 1988-89 vis-a-vis 1987-88. The low priced oil directly impacted on the Crown's oil royalties. Low oil prices also reduced the industry's revenues and dampened exploration activity, which, in turn, lowered government revenues from bonuses and sales of Crown agreements.

Figure 2
Gross Energy Revenue



Source: Mineral Revenues Division

Petroleum Royalties

Gross Crown Royalty Share

The volume of Crown oil produced in 1988-89 was 48 million cubic metres, an amount equal to 1987-88 levels. The gross Crown royalty share was approximately 25.9 per cent of the volume produced from Crown lands during the year.

Royalty Holidays

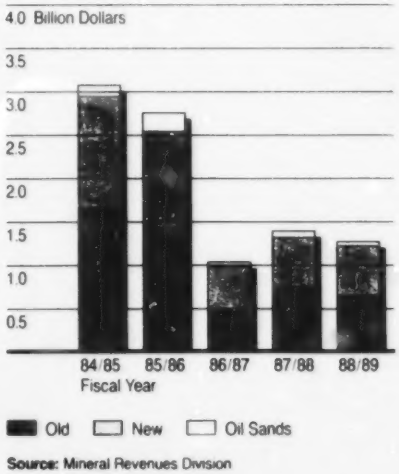
The Crude Oil Royalty Holiday Program (CORHP) has encouraged exploration oil well drilling. The benefits earned are used over time and contribute to improved industry cash flow.

From program commencement in 1986 to October 31, 1987, five-year royalty holidays were earned. Then three-year royalty holidays were earned until October 31, 1988. One-year royalty holidays were then available until October 31, 1989.

In 1988-89 the government used CORHP to enhance the economic attractiveness of drilling new oil wells. It allowed industry to earn three-year royalty holidays for eligible wells drilled between October 1988 and May 1989. The government also placed a $1 million maximum per well on the benefits to be earned under CORHP from November 1, 1988 to program end.

In 1988-89, over 2 600 of the wells drilled in Alberta were eligible for CORHP. They earned nearly $115 million in royalty relief.

Figure 3
Petroleum Royalties



Source: Mineral Revenues Division

Efficient Reservoir Management

Maximum recovery of fossil fuel resources is an integral part of responsible mineral resource management.

Enhanced "tertiary" recovery methods contribute to achieving maximum recovery. Such methods of recovery are more effective, but they are more costly to apply than secondary recovery methods, such as a waterflood.

The Government of Alberta recognizes that the Province receives additional royalties when enhanced oil recovery (EOR) methods are used. In the interest of responsible resource management, the Province encourages industry to apply the more costly and effective EOR methods where justified by the extra oil recovery.

The government uses the royalty mechanism to reduce the costs of applying EOR methods by industry by forgoing royalties in the early years of hydrocarbon and miscible flood EOR projects.

While additional costs incurred by industry are offset by the government, royalties are paid to the government on the subsequent increased production in later years. The royalties from expected increased production allow the government to cover the royalties it foregoes to encourage the use of EOR methods. In 1988-89, EOR projects benefited by $240 million in royalty relief.

The Crown royalty share, net of holiday well production and EOR relief, was 18 per cent.

Net Royalty Volume and Oil Sands Royalty Revenues

Net royalty volumes (Figure 3) from conventional oil generated revenues of $938 million, a decline of $398 million from 1987-88. Lower prices contributed to this decline.

Oil sands royalties were $19 million in 1988-89, down from the $22.6 million in 1987-88. The effect of increased production of synthetic crude oil, bitumen and sulphur was more than offset by lower unit prices for each commodity.

Oil Production Surveillance

During the course of the year, the department finalized with the Energy Resources Conservation Board a program to be conducted by the Board which would test the completeness and accuracy of oil production reporting. Preliminary results from the operation of the program indicated that standards are high and that there is little exposure to the Crown in terms of lost production.

Bitumen Production

The $200-million expansion by BP Resources Canada (Wolf Lake) and $325-million expansion by Esso Resources (Cold Lake), both announced in 1987, proceeded to near-completion and contributed to increased bitumen production, as did the one experimental project that started up during the year.

Oil Sands Royalty Agreements

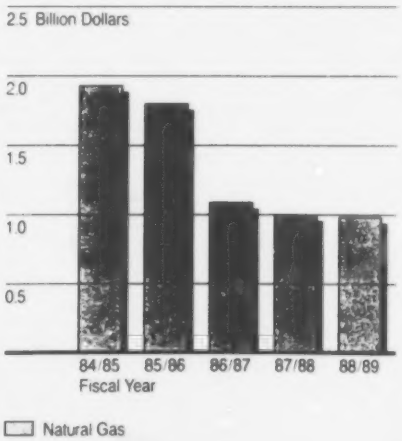
Alberta receives its share of Crown resource development through royalty agreements. In 1988-89, negotiation of royalty agreements continued for the Other Six Leases Operation (OSLO) mining project, the Amoco (Primrose) and Suncor (Burnt Lake) commercial in-situ projects.

Natural Gas and By-Product Royalties

Royalty Revenue

Increased gas sales volumes resulted in record Canadian (mainly Alberta) gas exports during the fiscal year. Natural gas price deregulation continued to exert downward price pressure on both domestic and export sales. Despite volume increases, net Crown natural gas and by-product royalty revenue during the year was $989 million, down $22 million or 2.2 per cent from 1987-88 (Figure 4).

Figure 4
Natural Gas and By-product Royalties



Source: Mineral Revenues Division

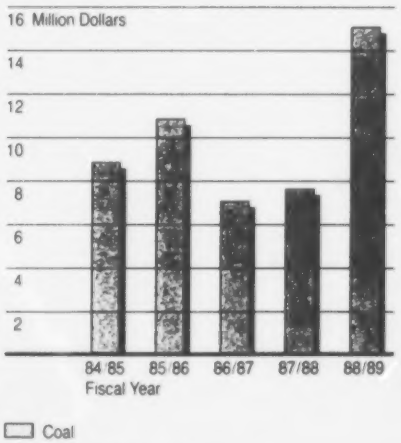
Coal Royalties

Coal royalties (Figure 5) increased to $15 million in 1988-89, up from $7.7 million in 1987-88, reflecting improvements in revenue and industry cash flow from stronger prices and increased sales.

Other Minerals Royalty

The royalty income associated with salt, sodium sulphate, gold and quarriable minerals held relatively constant at $143 523.

Figure 5
Coal Royalties



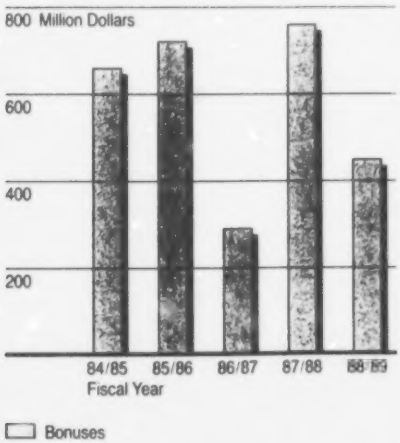
Source: Mineral Revenues Division

Sales of Crown Petroleum and Natural Gas Rights

Revenues from the sale of 6 662 Crown petroleum and natural gas agreements (leases and licences) during the fiscal year were $447.8 million, 41 per cent less than the previous year (Figure 6). Over 3 million hectares were covered in these agreements, slightly more than were sold in 1987-88. Sales by direct purchase provided $1.8 million. The average price per hectare was $178, down from the $302 per hectare received in 1987-88, but up from the $140 per hectare received in 1986-87.

While low oil prices and reduced industry revenues dampened exploration activity, uncertainty about the future of world oil prices, the continuation of mergers and acquisitions, and asset rationalization also contributed to a lack of interest in exploration, hence sales of oil and gas rights.

Figure 6
Crown Sales, Oil and Natural Gas Agreements



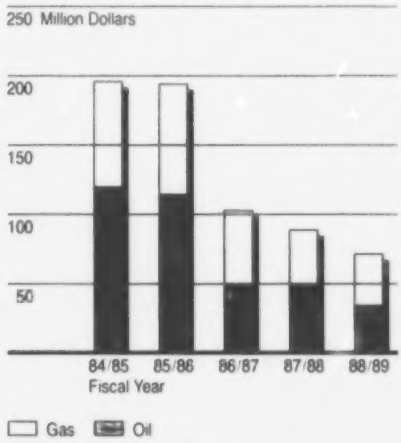
Source: Mineral Revenues Division

Rentals and Fees

Whether or not oil and gas are being produced from rights granted by mineral agreements, an annual rental is paid to the Province for each mineral agreement, typically $2.50 per hectare. Fees are also charged by the Province for administrative functions associated with issuing and maintaining oil and gas agreements.

In 1988-89, oil and natural gas and oil sands rentals and fees provided nearly $74 million in revenue. Other rentals and fees, including oil sands prospecting permits, oil sands leases, coal and coal road allowance agreements, metallic mineral exploration permits, metallic mineral leases and other minerals agreements, provided nearly $3 million.

Figure 7
Freehold Mineral Rights Tax Assessment (Net)



Source: Mineral Revenues Division

Freehold Mineral Rights Tax

Freehold Mineral Rights Tax is calculated on the value of minerals produced in Alberta where those mineral rights are not owned by the Crown in right of Alberta or in right of Canada, and is a tax attributed to the title owner. For the 1988 taxation year (Figure 7), 5 081 taxable titles resulted in a tax assessments of $72.5 million; $35 million to oil-producing titles and $37.5 million to gas-producing titles. Net revenue, allowing for relief and tax revisions, was $71 million, compared to over $92 million in 1987-88. The difference between tax assessed and net revenue was the result of appeals. Oil prices caused oil tax revenue to fall, while the effects of increased natural gas production were offset by the effects of decreased prices.

As there is an exemption on the first $1 600 of Freehold Mineral Rights Tax assessed, 12,400 titles paid no 1988 taxes.

Crown Participation

Cost Rebate Programs

In previous years, the Province used various cost rebate programs. Benefits earned were based on a percentage of the costs of exploration and development. Cost rebate programs were used to assist geophysical work, exploratory and development drilling, and well servicing.

Although the programs in question have expired, administration is required as the benefits earned are used over time, generally against a calendar date or a specific dollar ceiling.

Mineral Resource Agreements

Background

Provincial Ownership — Private Development

The Alberta Crown owns approximately 81 per cent of mineral resources within the province. The remainder of the mineral resources are owned "freehold" by private interests or the federal government.

Although overwhelmingly publicly owned, Alberta mineral resources have always been privately developed. This resulted not so much from a conscious decision by government as from a long-standing recognition that government's role is to provide a business climate within which private individuals and companies will apply their skills and risk their money in anticipation of a profit.

Therefore, Crown mineral resources such as oil, gas, oil sand, coal, metallic minerals and others have traditionally been explored for and developed by the private sector. Before exploratory drilling and development may take place, an energy company must hold an exclusive agreement to the mineral rights with the Province of Alberta. These mineral agreements are issued by the Mineral Resource Division in the forms of permits, licences, and leases.

Figure 8 lists the year's opening and closing inventories of agreements, and changes in the inventory of active mineral agreements.

Responsible Stewardship

Petroleum, natural gas and other mineral development results in environmental, economic and other impacts. Mineral agreements ensure Alberta Energy's responsible stewardship of Alberta's mineral resources and their use. This is achieved through careful management and full participation in integrated resource planning.

Mineral Tenure System

In the early years of exploration and development, a significantly different mineral tenure system existed. Today, however, the number of parties interested in development has increased; the Province of Alberta's resource data base has grown in sophistication; and the mineral rights for large areas of the province have already been leased. Such circumstances have required the tenure system to develop in response to and in anticipation of new circumstances. The process of improving the system and identifying constraints that should be placed on mineral resource exploration and development is ongoing.

Alberta's lead in developing an effective mineral tenure system has been recognized by many other countries that are in the process of setting up their own mineral rights administration systems.

Land Status Automated System — Mineral Rights Subsystem

An automated register of land and subsurface mineral rights, the Land Status Automated System (LSAS), is used by the department to monitor and administer mineral rights agreements. In previous years, the Department contributed to the development of this computer data base by providing subsurface data. Today, the Department provides information to LSAS on the current ownership of Crown mineral rights as it processes mineral agreements.

Figure 8
Active Mineral Exploration and Development Agreements

	Number of Agreements				Thousand Hectares			
	March 1988	Issued	Cancelled	March 31 1989	March 31 1988	Issued	Cancelled	March 31 1989
Petroleum and Natural Gas Licences and Leases	56 088	7 364	4 489	58 963	27 019	3 188	3 376	26 831
Oil Sands Prospecting Permits	15	3	11	7	108	5	76	37
Oil Sands Leases	299	21	13	307	2 607	119	137	2 589
Coal and Coal Road Allowance	2 920	78	214	2 784	1 131	61	98	1 094
Metallic Mineral Exploration Permits	21	16	5	32	79	102	7	174
Metallic Mineral Leases	11	1	3	9	4	0	3	1
Other Minerals	141	17	11	147	19	1	0	20
TOTAL	59 495	7 500	4 746	62 249	30 967	3 476	3 697	30 746

Source: Mineral Resources Division

Petroleum and Natural Gas Agreements

Licences and Primary Term Leases

Upon request, undisposed petroleum and natural gas mineral rights for specific lands are advertised for sale. At the subsequent public offerings, the highest bidder acquires the exclusive rights, through licences and leases, to explore for, develop and produce any petroleum and natural gas in areas and geological zones included in its agreements. The time period specified in each agreement is referred to as the primary term.

This sale and leasing arrangement provides the Province with revenue in the form of a bonus and annual rental fees. The Province receives further revenue from royalties on subsequent production.

1988-89 Lease and Licence Sales Highlights

Leases and licences covering over three million hectares of petroleum and natural gas rights were sold in 1988-89, slightly more than in 1987-88. Of Alberta's 62 000 mineral agreements in March 1989, the majority (nearly 95 per cent by year's end) were petroleum and natural gas leases and licences, with approximately 2 000 companies holding registered interests in Crown petroleum and natural gas agreements.

Three areas attracted significantly higher than average prices in 1988-89: Provost, with bids in excess of $8.5 million for 21 parcels and an average per-hectare price of over $2 200; Carrot Creek, with bids in excess of $5 million for 12 parcels and an average per-hectare price of over $2 000; and Obed, with bids in excess of $7 million for eight parcels and an average per-hectare price of over $700. Also of note was the sale of rights under the Wainwright Military Reserve.

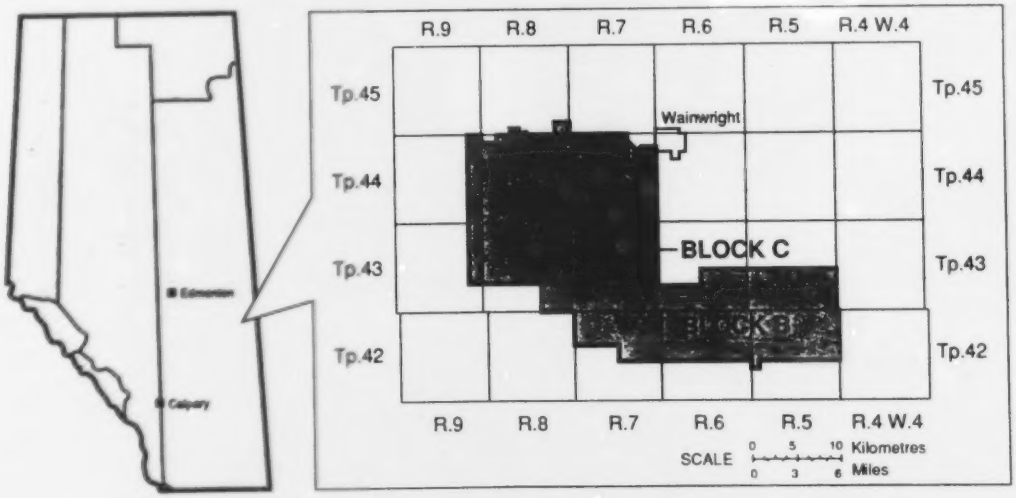
Wainwright Military Reserve

In 1987-88, agreement in principle was reached with the Department of National Defence (DND) concerning the exploration and development of petroleum and natural gas resources under the Wainwright Military Reserve (Figure 9). The seismic program for Block A was conducted on behalf of the Alberta Government by a contractor and the seismic data were made available to industry on a cost-recovery basis.

During 1988-89 negotiations, DND agreed to allow exploration and development to proceed on a co-ordinated multi-operator basis. In May and June two public offerings of rights were made within Block A. Five parcels containing 21 248 hectares were sold for bonuses totalling $16.5 million. Three separate operators acquired the rights and drilled 22 wells in the fall of 1988.

Two further offerings for Block B are planned for the 1989-90 fiscal year. The seismic program for Block B was conducted in a manner similar to that for Block A. The program covered 268 kilometres and cost $750 000, which was shared equally by six purchasers.

Figure 9
Wainwright Military Reserve



Expiries — Primary Term Leases

At expiry, lessees must apply for continuation of leases based on proven productivity. Lands and zones considered to be productive by the Department are continued to the base of the deepest productive zone.

Where a well has been spudded within 90 days of lease expiry, and drilling is continuous, the Department will continue the portion of the lease considered to be evaluated by the well. In these cases, continuation is usually for a 90-day period from the date that drilling of the well is finished.

In cases where the Department considers that potentially productive rights exist, a one year continuation is common.

Agreement Expiries — 1988-89

Most of the 3 999 primary-term five-year petroleum and natural gas leases issued in 1983-84, and some other longer-term leases, expired in 1988-89. Approximately 4 100 primary-term expiring leases containing 1 997 822 hectares were processed by the department in 1988-89. The results of these reviews are shown in Figure 10.

For the primary-term leases, covering 374 434 hectares, that were continued based on proven productivity, the rights retained were determined by the areal extent of the productive pool(s) and the deepest productive zone(s). The continued rights have been retained by the lessee until such time as productivity can no longer be established. The rights continued because of drilling operations near the end of the primary term totalled 51 324 hectares. These are reviewed at the end of the short-term extension for continuation based on proven productivity.

Approximately 1 462 871 hectares of mineral rights from primary-term leases reverted to the Crown in 1988-89 because of nonproductivity.

As a result of the one-year continuation in 1987-88 of primary-term leases considered to be potentially productive (Figure 11), an additional 344 agreements (106 517 hectares) were reviewed in 1988-89. Of the mineral rights contained in these agreements, 11 472 hectares were retained by lessees as they were proven productive. Approximately 80 per cent remained unproven and reverted to the Crown. The remaining 9 per cent (10 198 hectares) were further continued because of active drilling operations.

Figure 10

Expiring Petroleum and Natural Gas Leases

	Hectares	(%)
Continued based on proven productivity	374 434	18.7
Continued because of drilling operations near the end of the term	51 324	2.5
Continued for a one year period as potentially productive	109 193	5.4
Expired by their own terms	1 462 871	73.2
TOTAL	1 997 822	

Figure 11

Petroleum and Natural Gas Leases Previously Continued for One Year

	Hectares	(%)
Continued based on proven productivity	11 472	11
Continued because of drilling operations near the end of the term	10 198	9
Expired by their own terms	84 847	80
TOTAL	106 517	

Monitoring Productivity

One-Year Notices

When productivity of a lease is in doubt, the Minister may serve a one-year notice stating that the lands or rights will revert to the Crown unless the lessee can provide new evidence of productivity.

During 1987-88, 1 391 such notices were served, affecting 307 757 hectares. These expiring notices were reviewed during 1988-89. The results of the review are shown in Figure 12.

The issuance of the one-year notices resulted in the drilling of 200 new wells and the re-entry and/or recompletion and subsequent production from an additional 65 wells.

During 1988-89, 685 new notices were served on leases comprising a total of 156 149 hectares. These notices will expire in the next fiscal year.

Petroleum and Natural Gas Production Efficiency and Equity

Offset Drilling Obligations

When a well is drilled on rights not owned by the Crown, and it is put on production, it has the potential to drain petroleum or natural gas from adjacent lands or geologic zones where the Crown owns mineral rights. To protect the interests of Albertans, the lessee of the Crown rights is given the option of drilling a well, paying compensatory royalty in lieu of drilling, or surrendering lands or rights to satisfy the offset obligation. Should such circumstances arise with an oil well, there is an automatic offset drilling obligation; i.e., once the well has produced oil for a period of 90 days, the lessee must satisfy the obligation without prior notice from the Crown. Should the lessee fail to satisfy the offset obligation within the 90 days, a 30-day notice of default will be served. In the case of a natural gas well, the Department serves the lessee with a 90-day notice of his responsibility to satisfy the gas offset obligation.

Natural Gas Offset Notices

In the past, the Department did not serve gas offset notices due to long-standing uncertainties relating to the marketing of natural gas. Over the past two years, however, the market for Alberta gas has improved considerably with producers readily able to sell what they can produce. As a result of these improved economic conditions, in early 1988 the Department conducted a review of producing freehold natural gas wells. It identified those on which offset notices should be served. The first notice was issued in August 1988 and, to the end of the fiscal year, 167 90-day offset notices were issued. From November 1988 to the fiscal year end, 10 wells were drilled and $140 000 in compensatory royalty were collected.

Unit Agreements

A number of parties, including the Crown, may have an interest in a common petroleum and/or natural gas pool. Owners of such resources have found unit agreements to be useful tools for maximizing oil and gas recovery, preventing drilling of unnecessary wells and minimizing costs while ensuring that each party recovers an equitable share of the resource. Such agreements have the effect of removing lease boundary limitations and permit the operation of pools as if they were under a single lease.

Figure 12
Productivity Checks

	Notices	Hectares
Further continued based on proven productivity (Including part continuations)	228	33 215
Continued due to drilling operations near the end of the term	47	9 808
Extended due to circumstances beyond the lessee's control	97	11 472
Returned to the Crown	1 019	253 262
TOTAL	1 391	307 757

In the past, the 1972 Model Unit Agreement, developed by the Petroleum Joint Ventures Association (PJVA), was used as a model for unit agreements. In 1988-89, the department participated in negotiations with the PJVA with the aim of bringing the 1972 Model Unit Agreement up to current industry standards.

Unit Agreements — 1988-89

Proposed unit agreements are reviewed by the Department of Energy before execution. Changes may be negotiated to ensure equity.

During the fiscal year 1988-89, 13 new unit agreements became effective and five existing agreements were enlarged. At year end, there were approximately 560 unit agreements to which the Crown was party: 314 agreements unitized oil and gas, 47 agreements unitized oil, and 199 agreements unitized gas.

Oil Sands Permits and Leases

Existing Leases

Each oil sands lease has a requirement for production at a specified capacity in order to enter its third term. A total of 315 oil sands leases now exist. One-third of these will reach the end of their second 21-year term between 1996 and 2008. These leases overlie 97 per cent of the surface-mineable and 49 per cent of the non-surface mineable oil sands reserves. Only one of these leases is currently producing at or above its specified capacity. For the Other Six Leases Operation project (OSLO), plans have been announced for a plant that would exceed its specified capacity by the end of its second term. Four other such leases are currently producing but at less than their prescribed capacities, and the others are not producing.

Proposed Amendments

In 1988-89, regulatory amendments were under active consideration to rationalize plant construction and timing by allowing leases to be grouped and their reserves dedicated to proposed plants. In spite of these changes, however, it is predicted most of the 103 leases will revert to the Crown. The rights would then be made available to new entrants under terms that would require production in one-half or less of the time previously allowed.

Lease Expiries/Renewals and New Leases

In 1988-89, six first-term oil sands leases reached their expiry dates. They were renewed for a further 21-year term. In addition to renewal of existing leases, 15 new oil sands leases and three oil sands prospecting permits were granted.

Coal and Other Mineral Rights Agreements

In the case of metallic minerals and other minerals, applications are accepted either in person or by mail. Coal agreements, however, may be obtained by application or by competitive tendering of work-refundable deposits. This process provides the agreement holder with the exclusive rights to develop and produce the minerals contained in those areas.

Gold Prospecting Permits

A small gold rush developed in January 1989 in the Coleman area of southwestern Alberta. A total of 25 applications for metallic mineral exploration permits were received based on an announcement by the first applicant that significant gold values were obtained from surface samples. It will likely be two to three years before the viability of this prospect is known.

Ammonite Shell Mineral Rights Agreements

An ammonite shell regulation was put into place in March 1989 and the department began receiving applications for agreements that will allow this new industry to develop. Ammonite shell is processed into jewellery and is gaining in popularity.

Conventional And Non-Conventional Oil

Background

Prices

The annual average price of oil declined in the first three quarters of fiscal year 1988-89 (Figure 13). This decline was triggered by the spread of price discounting and production in excess of assigned quotas among some members of the Organization of Petroleum Exporting Countries (OPEC), and uncertainty surrounding OPEC's ability to enforce its quota system.

World crude oil prices reached their lowest point (since the price crash in 1986) in November 1988. In November, OPEC signed a new production accord. The signing of the accord and economic growth, which increased the demand for crude oil in world markets, stimulated a price recovery in the fourth quarter.

Production

The production of Alberta conventional light and medium crude oil declined from 926 000 barrels per day in 1984 to 845 000 barrels per day in 1988. However, the reserves and production of conventional light crude oil have been declining less rapidly than expected. In addition, the overall production of crude oil rose due to increases in the production of heavy oil, bitumen, and synthetic crude oil.

Bitumen production increased from 26 000 barrels per day in 1984 to 130 000 barrels per day in 1988. In the last several years, various companies have developed plans for expansion of eight existing and proposed commercial projects. These capacity additions would have resulted in bitumen production increasing to an estimated 250 000 barrels per day by 1994. However, virtually all of these companies announced delays in expansion or start-up plans due to low and unstable oil prices during 1988. As a result, bitumen production for 1989 and 1990 is not expected to increase appreciably above 1988 levels.

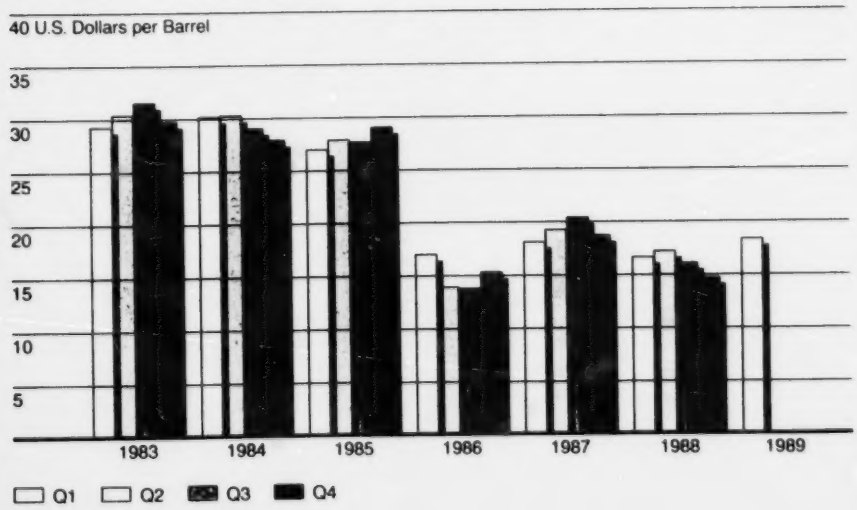
Heavy oil production was 146 000 barrels per day in 1988. During the same year synthetic crude oil production was approximately 200 000 barrels per day — about 15 per cent of total oil production (conventional, pentanes plus and synthetic crude oil). The synthetic crude oil production came from two integrated facilities: Suncor and Syncrude. Suncor, formerly called the Great Canadian Oil Sands Company (GCOS), has been producing synthetic crude oil since 1967 and Syncrude since 1978.

Markets

Twenty-two per cent of the crude oil and equivalent production in 1988 was consumed in Alberta, and 40 per cent in Canadian markets outside of Alberta. A further 38 per cent was exported to the United States and offshore markets.

Exports more than doubled, rising from 254 000 barrels per day in 1984 to 549 000 barrels per day in 1988. This growth was stimulated primarily by the reorientation of the North American market following deregulation.

Figure 13
West Texas Intermediate Crude Oil Prices



Source: Petroflash

Conventional Oil Supply Development

Alberta continues to move toward reliance on the market to encourage further investment in all facets of conventional oil supply development. In 1988-89, the government continued to support a stable, attractive fiscal regime for the industry.

Royalties, Royalty Holidays and Tax Credits

In 1988-89, the Department conducted a review of royalties, royalty holidays and tax credits to ensure a healthy environment for exploration and development. While the focus of the review was on stabilizing the Alberta Royalty Tax Credit (ARTC) and royalty holidays in order to allow longer-term planning and encourage the industry to attract new equity, some short-term measures were warranted.

On October 31, 1988, the Minister of Energy announced changes to the Crude Oil Royalty Holiday Program (CORHP) and ARTC. Changes in CORHP made the three-year royalty holiday available for qualifying oil wells drilled during the 1988-89 winter season. Changes in the ARTC provided a rebate of 75 per cent of provincial royalties until December 31, 1989, to a corporate maximum of $3 million.

The changes to these programs were designed to enhance the cash flow and project economics of the conventional oil and gas industry in Alberta by approximately $200 million, depending on oil prices.

The Minister also undertook to work with industry to structure a long-term, price-sensitive ARTC program that would give industry even greater certainty that the program would remain in place and continue to assist industry cash flow during periods of lower prices.

Non-Conventional Oil Supply Development and Security

Even though Alberta has considerable conventional potential, conventional light and medium production has declined from a peak of 1.4 million barrels per day in 1973, to approximately 850 000 barrels per day in 1988-89. The government's strategy has been to develop the province's heavy oil and oil sands resources and to upgrade them here.

Development Strategy

In May 1987 the Department completed a major review of Alberta's oil sands and heavy oil resources and prepared a new development strategy (Figure 14). The strategy was used to determine the Alberta government's role in the Other Six Leases Operation (OSLO) oil sands project and the Lloydminster Bi-Provincial Upgrader project. The strategy will be used to determine the government's role in other heavy oil and oil sands projects — both those already under consideration and those yet to be brought forward.

Figure 14
Alberta's Strategy for the Development and Upgrading of Heavy Oil and Oil Sands Resources

Major Objective

To promote optimal development of Alberta's heavy oil and oil sands resources within the province using the best technology and with environmental and conservation sensitivity.

Strategy

The Alberta government has established a heavy oil and oil sands strategy targeted at accomplishing the development of these rich resources. The strategy recognizes the massive resource potential, the technical and economic obstacles involved in its development and the potential contribution of this development to the economies of Alberta and Canada. It recognizes the potential need for governments to work with industry to overcome the unique barriers that face large-scale oil sands and heavy oil projects within an overall market oriented environment. Decisions must be viewed from a long term perspective of further development and diversification of the Alberta economy.

Key Strategy Elements

1. Maximizing the value added to the resource here in Alberta;
2. Continuing diversification based on resource development;
3. Ensuring development of the resource occurs in an environmentally sensitive manner which recognizes the needs of the local communities affected by resource projects;
4. Ensuring that the people of Alberta, as resource owners, receive a fair share of the benefit of developing these resources;
5. Supporting research and development activities for new technology in the heavy oil and oil sands; and,
6. Maintaining an open door policy for project proposals from industry.

Development Strategy Government Action

In 1988-89, consistent with implementing the strategy, the Department of Energy and Alberta Oil Sands Equity were directly involved with Syncrude, the OSLO Commercial Project, and the Lloydminster Bi-Provincial Upgrader (Appendix 2).

These projects are important strategically to oil supply and economic development. Albertans and other Canadians will benefit from increased employment opportunities, increased economic and energy stability, and investment spin-offs associated with these projects, particularly in the development and service sectors.

Project Expansions

Discussions were held with Shell Canada regarding expansion of the company's Peace River bitumen project and construction of an associated upgrader next to its Scotford Refinery, and with Suncor regarding a major expansion of its Fort McMurray plant. Because of the price weakness experienced in 1988, the companies indicated they planned to delay construction or expansion of these projects until prices firmed and the outlook improved. While prices were stronger and still strengthening at the close of the fiscal year, the companies indicated that a more prolonged period of stronger prices was needed for these investments to go forward.

Transportation and Markets

Constrained Pipeline Capacity

Pipelines have an impact on crude oil disposition and producer cash flow. Crude oil leaves Alberta primarily by Interprovincial Pipe Line Limited (IPL) to the east, Trans Mountain Pipe Line (TMPL) to the west, and Rangeland Pipeline to the south.

A major expansion to the IPL system was completed in December 1987. Despite this expansion, increased production and rising exports were constrained by pipeline capacity. In the 1988-89 fiscal year IPL operated at capacity; apportionment was necessary during part of the year. Small volumes (an average of 12 600 barrels per day) of light and medium crude were shut-in during this period.

Proposed Expansions

IPL has been reviewing with industry and government a proposal to expand its system to provide additional capacity of 200 000 barrels per day in the 1990s. The cost of the expansion was estimated to be about $1 billion. IPL subsequently decided to postpone the expansion due to the lower levels of drilling activity in Western Canada and the declining production of crude oil.

In September 1987, TMPL filed an application with the National Energy Board (NEB) for a two-stage expansion. Like IPL, it was operating at capacity during part of fiscal year 1988-89. In August 1988, the NEB approved the Stage 1 facilities expansion. The facilities, expected to cost $57 million, will add new capacity of about 18 880 barrels per day and are scheduled for completion in late 1989.

The Department continued to review and analyze oil pipeline expansion proposals to assess the need for additional capacity.

Oil Pipeline Toll Methodology

The NEB initiated a major review of oil pipeline toll methodology and invited IPL and TMPL to submit proposals. Of particular interest was the appropriate methodology to be used for calculating capacity surcharges for heavy crude oil.

Department staff worked closely with the Alberta Petroleum Marketing Commission to provide research and support in studying the toll methodology questions being addressed by the NEB. The Department wants to ensure that the new methodology will result in a fair and equitable toll structure.

Natural Gas and Petrochemicals

New Frontiers

OSLO New Ventures Program

The aim of the OSLO New Ventures Program is to develop new bitumen extraction technologies that hold significant potential to substantially reduce the costs of oil sands development. Esso Resources Ltd. is the operator for the OSLO New Ventures Program as well as for the OSLO Commercial Project. However, the management committees for the two projects are separate. Esso Resources Ltd. is currently investigating three new technologies under the New Ventures Program — dredging, cold water extraction, and borehole mining. The Alberta Oil Sands Technology and Research Authority is also participating in these investigations.

The OSLO owners decided to separate the new ventures management and activities from those of the commercial project in order to maintain the drive and focus developed over the past several years. Alberta Oil Sands Equity has a 10 per cent interest in the New Ventures Program.

Background

Prices

Natural gas prices fell moderately in the 1988-89 fiscal year, reflecting the renegotiation of contracts between Canadian distributors and Alberta producers and the continued downward pressure exerted by the natural gas surplus.

Production

Production of marketable gas in 1988-89 totalled 2 967 billion cubic feet, an increase of roughly 10 per cent over the previous year.

Domestic Markets

Domestic demand for Alberta natural gas continues to grow fairly steadily. Though the domestic market is considered to be a mature market for natural gas, given its large size — Alberta domestic sales totalled 1.9 trillion cubic feet in 1988-89 — moderate growth is expected to result in growth of sales volumes.

United States Market

Natural gas exports to the United States increased by 15 per cent in 1988-89, the final year of a three-year period in which natural gas exports to the U.S. grew by about 80 per cent to almost 1.1 trillion cubic feet, an all-time record. Natural gas pipelines are now operating near capacity; however, with moderate expansions in the 1989-90 fiscal year, sales are also expected to increase moderately.

Growing U.S. demand together with a projected decline in deliverability from the U.S. Gulf Coast region, a major U.S. supply basin, are expected to create significant market potential for gas from Alberta along with other U.S. supply regions.

Natural Gas Supply

Incentives and Royalty Holidays

The Exploratory Gas Well Incentive Program, instituted on July 31, 1985, expired in June 1988. The intent of the program was to encourage exploration for natural gas. Benefits under the program were depth related; the deeper the discovery, the greater the amount of relief granted. The program recognized the different costs associated with drilling in different geographic areas of the province by providing different levels of benefits.

The Deep Gas Royalty Holiday Program, instituted June 1, 1985, continued to encourage exploration for gas pools below 2 500 metres. The program helps to defray costs of drilling deeper than 2 500 metres and for each well the amount of relief is capped at an amount determined to cover these costs.

Transportation and Markets

Market Deregulation

For the natural gas industry, 1988-89 was a year of continued transition to the deregulated market initiated in October 1985 by the Agreement on Natural Gas Markets and Prices signed by the Alberta, B.C., Saskatchewan, and federal governments. The Department worked closely with the Alberta Petroleum Marketing Commission (APMC) and the Energy Resources Conservation Board (ERCB) to provide policy support, and held discussions with industry and the governments of consuming provinces, all to effect the continued smooth transition to a deregulated market environment.

Security of supply and access to pipeline transportation remain the key outstanding issues in domestic deregulation. The department continued to provide policy support in these areas.

Deregulation Milestone

A deregulation milestone was achieved in October 1988. System gas contracts (contracts between Alberta producers, TransCanada PipeLines/Western Gas Marketing Limited and eastern Canadian natural gas distributors) that were in existence prior to deregulation were successfully renegotiated — as anticipated by the 1985 deregulation agreement.

Security of Supply

The Department provided policy support for the Minister and senior departmental officials in their discussions with the consuming regions regarding security of supply. As part of the deregulation package, the National Energy Board adopted a market-based procedure for reviewing exports and security of supply. This procedure reflects the reliance on market contracts to provide for future Canadian requirements rather than dependence on government regulation. A consensus policy has yet to be reached with Ontario regarding a contractual approach to security of supply that will address the long-term requirements of its essential users of natural gas. However, in June 1988, the Quebec Government passed legislation that provides essential users of gas with contractual security should they choose to purchase gas from the local distributor or directly from a producer or marketer.

Removal Permits

In addition to providing policy support, the department, jointly with the ERCB, administers the Alberta Removal Permit System. The department manages the information on downstream contracts filed with the Minister of Energy in connection with gas removal permit applications in accordance with the Permit Conditions Regulation. In the face of a dramatic increase in the number of applications handled in 1987 and 1988, the department managed to maintain a short processing time.

Proposed Expansions

A number of major export pipeline expansions have been proposed to the U.S. northeast, the midwest and California. The Department has worked very closely with the APMC and has provided policy support to the Commission in regulatory proceedings dealing with expansions of the TCPL system and new connecting pipelines to the U.S. northeast — in particular the Iroquois, Champlain, and Empire State projects — as well as issues relating to natural gas pipeline tolls and the terms of access to transmission capacity.

Ethane Markets — Petrochemicals versus Enhanced Oil Recovery

In 1988-89, the Department endeavored to take further steps to find an appropriate balance between two important but competing uses of ethane — i.e., petrochemical use and ethane's use as an injectant for enhanced oil recovery projects — and put in place a clear, long-term policy. It provided research and policy advice on ethane policy to the Minister. In August 1987 the Government of Alberta issued a policy statement on ethane.

Following a public inquiry in which interested parties were invited to comment on the policy statement, the ERCB released a study in May 1988 entitled *Alberta Ethane Policy: Report on Implementation.*

Department officials reviewed the ERCB report and provided policy recommendations to the Minister. In October 1988 the government issued a statement on *Implementation of an Ethane Policy in Alberta.*

Coal and Other Minerals

Background

Three types of coal are produced in Alberta. Subbituminous coal is mined in the plains region; metallurgical and thermal bituminous coals are mined in the mountains and foothills. Almost 98 per cent of the coal produced in Alberta is surface-mined, with the remainder produced by underground mining. Most of the coal produced in Alberta is subbituminous.

Prices

Coal prices increased in 1988. International coal prices increased by about 7 per cent.

Production

In 1988, the province produced 33.4 million tonnes of raw coal, compared to 28.8 million tonnes in 1987. Alberta accounted for almost 70 per cent of Canada's total marketable coal production. The estimated value for total provincial coal production in 1988 was just over $500 million.

Markets

Though coal prices increased in 1988, there was an increase in demand for coal in 1988. Marketable coal deliveries were 29.4 million tonnes, an increase of 14 per cent over 25.7 million tonnes in 1987.

A number of international developments contributed to the increased demand. These included increased steel production in Japan, labor unrest in Australia, and widespread drought conditions in North America. The latter adversely affected hydroelectric generation.

Deliveries — Bituminous Metallurgical

A total of 5.9 million tonnes of marketable bituminous metallurgical coal were produced. Deliveries rose 43 per cent over 1987. Japan received about 80 per cent of deliveries; Brazil and Korea received the remainder.

Deliveries — Bituminous Thermal

In 1988, 3.6 million tonnes of bituminous thermal coal were produced. Deliveries increased by 18 per cent. About 40 per cent was shipped to Japan and Korea; the remainder was used in Ontario, B.C. and Alberta.

Deliveries — Subbituminous Thermal

In 1988, 19.9 million tonnes of marketable subbituminous coal were produced. Deliveries increased by 7.5 per cent. All of this coal was used for electric power generation for the province.

Supply Development

Alberta's coal royalty formula is based on costs, revenues and investment, and royalty share increases as the mine achieves greater economic success. The flexible royalty rate increases from a minimum of 5 per cent on small or marginally economic projects to higher levels on more profitable operations. For new projects, the royalty rate is phased in over a five-year period. The government may also waive the minimum 5 per cent royalty in certain circumstances.

Transportation and Markets

Coal to Ontario Initiative

The Deputy Prime Minister of Canada and the Premiers of Ontario, Saskatchewan, Alberta, and British Columbia created an Action Committee on Western Canadian Low-Sulphur Coal to Ontario (Figure 15). The Alberta Premier committed up to $16 million to this initiative.

Figure 15
Western Canadian Low-Sulphur Coal To Ontario
Membership, Objectives and Funding

Action Committee on Western Canadian Low-Sulphur Coal to Ontario Membership:

Chairman	• Deputy Prime Minister of Canada
Vice-Chairman	• Premier of Ontario
Members	• Premiers of Alberta, British Columbia and Saskatchewan

Objectives:

- Identify methods to improve the competitiveness of western Canadian coal for Ontario industry;
- Review all regulatory and fiscal aspects of coal transportation, and
- Pursue product oriented research programs related to coal technologies.

Funding:

Government of Canada	$27 million
Government of Alberta	$16 million
Governments of British Columbia, Saskatchewan and Ontario	$11 million
Private Sector	$27 million
TOTAL	$81 million

The Action Committee appointed an Intergovernmental Secretariat of one official from each of the five participating governments.

In conjunction with industry, the Secretariat identified 14 projects relating to improvements in mine productivity, coal products, transportation, and taxes and regulatory costs (Figure 16). These initiatives were agreed upon by the Action Committee in May 1988. Alberta has assumed the lead role in several of these proposed projects.

International Initiatives

The Minister of Energy and several senior officials travelled to Japan in November 1988 to discuss a variety of energy-related issues. Chief among them was a discussion of future markets for Alberta bituminous thermal and metallurgical coals.

New Frontiers

Alberta Office of Coal Research and Technology

The Alberta Office of Coal Research and Technology was established in 1984 by Ministerial Order to provide a focus for the Alberta government's support for coal research and technological development assistance. It is a Research and Development planning and funding initiative. Details on the research programs supported through the Alberta Office of Coal Research and Technology, and project expenditures, are contained in its Annual Review, 1988-89.

Projects of Note: Coal Fired Boiler

The Office of Coal Research and Technology is participating in an industry/government project to design, constuct and demonstrate a coal-fired boiler to generate steam for enhanced recovery of heavy oil. This could lead to a sizeable new market for Alberta coal.

Figure 16
Western Canadian Low-Sulphur Coal to Ontario
Projects Identified

		Project Leader	Funding Amount ($)
Mine Productivity Improvements			
1	Thick Seam Extraction	Alberta	8.8 million
Coal Product Improvements			
2	Air-Sparged Hydrocyclone	Alberta	0.39 million
3	HYDROSIZER for Fine Coal	Alberta	0.04 million
4	ARCO Flux	Saskatchewan	0.06 million
5	Compound Water Cyclone	Alberta	0.37 million
6	Tailings Reclamation	Alberta	0.14 million
7	Thermal Treatment	Saskatchewan	0.13 million
8	On-Line Coal Analyzers	Alberta	0.63 million
Transportation Imrpovements			
9	Trans/COM (Coal-Oil-Mixture) Phase 2	Alberta	0.98 million
10	Rail Efficiencies	Canada	—
11	Thunder Bay Terminal Operations	Ontario	0.08 million
12	Laker Transportation	Ontario	0.08 million
13	Panama Routing	Ontario	—
Improvements in Taxes and Regulatory Costs on Rail and Pipeline Traffic and on Coal Producers			
14	Taxes and Regulatory Costs on Rail and Pipeline Traffic	Coal Assoc.	0.05 million
15	Taxes and Regulatory Costs on Coal Producers	Ontario	—
TOTAL			12 million

Trade

The benefits of the Canada-United States Free Trade Agreement are expected to be significant for the energy sector. By providing for the elimination of tariffs and essentially all other restrictions on trade between the two countries, the Agreement reaffirms the commitment by governments to a market-based approach to energy policy.

Since 1986 the Department has had representatives at the Deputy Minister and other departmental official levels on committees dealing with trade policy to establish Alberta's priorities in the negotiations for the Canada-United States Free Trade Agreement and the negotiations for the Uruguay Round of multilateral trade talks of the General Agreement on Tariffs and Trade (GATT).

Through participation in these committees in 1988-89, the Department provided input to the federal government in matters pertaining to the implementation of the Free Trade Agreement. The Department contributed to an interdepartmental study of market opportunities for Alberta businesses in a free trade environment and also provided information to interested parties who enquired about the energy provisions of the Free Trade Agreement.

Environmental Protection, Efficiency and Technology

The nature and level of energy consumption required to sustain our current lifestyle includes the production, processing, transportation and marketing of large quantities of Alberta's fossil fuel resources. In 1988-89, environmental concerns began to dominate the energy agenda. Some concerns are the result of production and processing practices involving mineral resources and fossil fuels; additional concerns relate to the emissions from the industrial, transportation and residential consumption of fossil fuels.

Mineral Resource Production and Processing

Environmental Protection

Alberta applies high standards of environmental protection in mineral resource production and processing through legislation and appropriate regulations. Organizations such as the Department of Energy, the Energy Resources Conservation Board, and Alberta Environment participate in developing these standards and ensure they are maintained and applied.

Integrated Resource Planning

The Department of Energy's participation in integrated resource planning provides a forum where environmental interests, as well as others, can be considered. Integrated resource planning is a co-operative and comprehensive approach to decision-making about the use and management of Alberta's public lands and resources. It is a formal mechanism through which government agencies can share with each other, as well as with members of the public, their resource-specific programs, policies, initiatives and objectives. This information is co-ordinated into an integrated strategy that optimizes benefits for Albertans now and in the future. Integrated resource plans function to resolve conflicts between and among resource uses, identify opportunities for new resource uses, and present a policy framework within which the compatibility and desirability of existing and future resource activities can be assessed.

In 1988-89, the Department of Energy was again actively involved in integrated resource planning. This participation was co-ordinated by the Mineral Resources Division, which worked to ensure that the mineral resources of each planning area are not "sterilized" unnecessarily and that sufficient opportunities are provided for industry to continue to explore and develop these minerals. This goal is largely achieved by advocating surface access to mineral resources, particularly where reserves have been proven or resource potential exists.

During the reporting year the Department made progress on 20 separate integrated resource plans, two of which were formally endorsed for implementation. The initiation of new plans for 1989-90 will focus on the northern forested areas of the province, where the challenge will be to integrate Alberta's forest industry developments with other equally important resource developments and values.

Fossil Fuel Consumption

Carbon Dioxide Emissions

At the August 1988 Energy Ministers Meeting in Quebec City, it was agreed to strike a federal/provincial/territorial task force to review the implications of recommendations from the June 1988 Changing Atmosphere Conference in Toronto. That conference recommended that global energy-related carbon dioxide (CO_2) emissions be reduced by 20 per cent of 1988 levels by the year 2005. The task force was asked to report to the 1989 meeting of energy ministers in late August in Toronto. The Department took an active role in the task force.

Alberta Carbon Dioxide Inventory

Parallel to the Energy and Environment Task Force activities, the Department prepared an inventory of energy-related CO_2 emissions for Alberta. This was based on the ERCB's energy requirement data and identified CO_2 emissions from 1988 to 2002. The energy industry and the use of coal to generate electricity are major contributors to Alberta's higher-than-average emission levels.

Through numerous meetings, many in co-operation with Alberta Environment, inventory information has been shared with both industry and public interest groups.

The inventory found that an estimated 112 million tonnes of energy-related CO_2 were produced in Alberta in 1988.

Gas Processing — Sulphur Emission Control and Assistance Program

In 1988, Alberta Environment and the ERCB reviewed sulphur recovery guidelines for sour gas plants in Alberta. As a result, recovery requirements were increased across the range of sour gas plant sizes. One of the decisions was a minimum sulphur recovery requirement of 70 per cent for low-emission plants (1-5 tonnes per day). These small plants had not previously been subject to recovery requirements. Since sulphur recovery was primarily to alleviate public concerns and provide a health benefit to the public by reducing air pollution, and considering the high costs of sulphur removal at small plants, it was recommended that the public share in such costs. Therefore, the Government of Alberta introduced the Sulphur Emission Control Assistance Program (SECAP) to be administered by Alberta Energy. SECAP will subsidize approximately 50 per cent of the costs of upgrading to the required level of sulphur recovery, plants with a sulphur capacity of 1-5 tons per day. Regulations to implement the program will be enacted in 1989-90.

Coal — Clean Combustion Technology

The Alberta Office of Coal Research and Technology is participating with industry in the development of several clean coal technologies meant to reduce the sulphur dioxide, nitrogen oxide and carbon dioxide emissions produced when coal is burned. In particular, a coal-use technology, known as Integrated Gasification Combined Cycle, is expected to produce 15 per cent less carbon dioxide than conventional coal combustion systems.

Energy Conservation — On-Site Industrial Use

Energy audits, conducted upon request for business, industry and institutions, identify potential energy-efficiency improvements through on-site analysis. Staff use two computer-equipped Energy Buses to monitor energy use, determine steps to reduce energy cost, and make recommendations for implementation. The Energy Conservation Branch has provided the free service for eight years and has audited some 2 000 buildings throughout Alberta.

In 1988-89, 230 buildings of various types were visited. Potential annual energy cost reductions of $1.43 million (20 per cent) through easily implemented measures were identified. Aggregate data from energy audits are shared with the private sector and at conferences and seminars.

Energy Conservation — A Goal for Albertans

Albertans could help reduce stress on the environment and could generate annual savings of more than $700 million through the more efficient use of energy. *Energy Conservation, a Goal for Albertans,* a discussion paper prepared in May 1988 by the Energy Conservation Branch for the Environment Council of Alberta, points out that individuals and organizations throughout Alberta are making efforts to use energy efficiently. It further points out that these efforts, practiced on a wider basis, could generate energy cost savings of some 20 per cent. Reduced emissions of carbon dioxide and other gases are immediate environmental benefits.

Energy Conservation — Information Programs

Information programs conducted by the Department for individual Albertans address residential, school and transportation energy efficiency concerns. Home owners and builders made use of the Energy Matters telephone inquiry service — which answers questions on residential energy efficiency — through more than 5 000 calls during 1988-89. More than 120 000 copies of publications were distributed through building supply and hardware outlets and other means.

More than 12 000 Alberta students received the energy saving message in their classrooms in 1988-89 through dramatized presentations by Energy Conservation Branch staff. Alberta educators received instructional and curriculum resources to help them teach the importance of energy efficiency to the next generation of energy consumers.

Approximately 250 000 Alberta drivers received fuel economy calculators and other materials to help monitor and improve fuel efficiency.

Fossil Fuel Alternatives

Hydrogen Research and Technology

In August 1987 the Advisory Group on Hydrogen Opportunities released a report recommending that a national "mission" be launched in Canada to develop advanced hydrogen technologies. This was suggested because energy experts believe hydrogen will be the primary fuel or energy carrier of the future and predict it will come into its own in the mid-21st century. The Alberta Government quickly endorsed the concept.

A/CERRF

A study supported by the Alberta/Canada Energy Resources Research Fund (A/CERRF) found that Alberta industries produce 55 per cent and consume 63 per cent of all the hydrogen in Canada. Major near- and intermediate-term growth in hydrogen production and consumption is expected to occur in heavy oil and bitumen upgrading. However, the costs of hydrogen production currently represent a significant portion of overall upgrading costs. This means that new or improved technologies are required to lower production and handling costs, and these technologies should complement the development of Alberta's heavy oil, bitumen and coal resources.

In August 1988, a joint industry/government steering committee was created to formulate and oversee a hydrogen technology research and development program for Alberta to be funded on a cost-shared basis by A/CERRF and industry. The components are new/improved hydrogen production technologies; hydrogen producer/consumer integration and storage/transportation; and end uses for hydrogen.

Seven projects in this program were approved by the A/CERRF Committee for funding in 1989-90.

Details on A/CERRF projects and a summary of program expenditures are contained in the A/CERRF Annual Review 1988-89. Information regarding hydrogen research is found in the *Energy Conservation and Renewable Energy Research, Development and Demonstration Program Annual Review 1988-89.*

Hydrogen Task Force

An Alberta Government Hydrogen Task Force was created to make recommendations to the Alberta government regarding participation in the national mission on hydrogen opportunities. The task force, which represents AOSTRA, Alberta Research Council, and the departments of Energy and Federal and Intergovernmental Affairs, is developing an Alberta position and strategy in the event that a national hydrogen mission is established.

Solar and Wind Energy

Early in 1988, the Hon. Neil Webber, then Minister of Energy, appointed the Southwest Alberta Solar, Wind and Renewable Energy Advisory Board to provide recommendations to the government regarding the establishment of a Southwest Alberta Renewable Energy Initiative. The purpose of the initiative is to promote economic development in southwest Alberta based on available renewable energy resources and related technologies. This is particularly appropriate for Pincher Creek and the Crowsnest Pass because the area has abundant renewable energy resources, such as solar and wind energy.

The advisory board presented its report to the Minister in March 1989. It recommended a long-term (7-10 years) program of support for renewable energy development and demonstration. The two principal recommendations were: (1) a financial support program to assist the private sector in developing, operating and evaluating significant renewable energy demonstration or pilot projects, and (2) a local information centre to serve as the focal point for industry, research institutions, governments and individuals. It is believed that this initiative could develop job opportunities in the area through the creation of a supply and service infrastructure and from increased tourism, and lead to a permanent renewable energy industry in the area.

Administrative Services, Computer Systems and Communications

Finance and accounting, management of human resource administrative services and systems requirements for the Departments of Energy and Forestry Lands and Wildlife are serviced by a common Finance and Administration Division.

Automated Information Systems

Automated Information Systems coordinated a major move into office automation and pilot-tested the Correspondence Management Information System. This system fulfils correspondence preparation and management information functions, and will eventually link all executive and management offices within the departments of Energy and Forestry, Lands and Wildlife.

During 1988, further efforts were made to increase microcomputer effectiveness. This included the development of training programs for microcomputer site administrators.

Development continued on the Mineral Revenue System (MRS) relating to gas deregulation and incentives management. A new model of the Mineral Revenues business and system was completed, which provides a blueprint for strategic planning in future years. A major new initiative was to simplify the system and business, and all new system designs were carefully reviewed for compliance to this directive.

Internal Audit

During the fiscal year, major computer-based systems were examined to confirm that controls were adequate and objectives of the system were being met. Because microcomputers were used widely within the department, new audit techniques were developed to assess the controls associated with the adaptation of microcomputer technology.

Audits were completed according to plan, including numerous special reviews for management. Deficiencies identified by earlier audits were reviewed to ensure corrective action was implemented. A three-year audit program, updated in consultation with divisional managment, continued to address the needs of the department and provide management with operational overviews.

Human Resources

Human Resources continued to participate in the temporary job creation programs sponsored by the Department of Career Development and Employment. An increased number of personnel programs were delegated to the division from central agencies, which required that administrative, communication and reporting processes be reviewed to increase efficiency.

The Training and Organization Development area implemented new courses based on identified needs; special emphasis was given to labour relations and safety program administration training for supervisors. Also a plan for offering additional training programs in regional locations was developed and implemented.

Corporate Security was integrated with the Safety Branch under the direction of Human Resources, with the intent of improving delivery of departmental safety and security programs and services.

In keeping with the department's intent to ensure a healthy work environment, and accompanied by strong employee support, smoking restrictions were put in place for all office locations.

Communications

Several publications were produced by the Department. A publication folder, *Energy in Alberta*, came out during the year, containing two booklets, *Alberta's Energy* and *Mineral Resources*, and an investment guide, *Investment Opportunities in Oil and Gas in Alberta, Canada* — as well as several fact sheets on the resources themselves.

Other publications included the annual report, many brochures, newsletters, and miscellaneous publications, and some new titles in the Technology Transfer series. This series covers research and application issues from coal mining to energy conservation.

Major announcements led to several news releases and news conferences. The OSLO and Lloydminster Bi-Provincial Upgrader announcements were the most significant, but announcements concerning the Suncor Burnt Lake project, ethane policy, increased coal research facilities, and many other subjects were also issued.

Appendixes

Appendix 1
Alberta Oil Sands Equity

Alberta Oil Sands Equity (AOSE), an unincorporated agency reporting to the Minister of Energy, manages the government's equity investments in energy projects. In 1988-89, these equity investments were in Syncrude, the Other Six Leases Operation (OSLO), both located in the Athabasca oil sands near Fort McMurray, and the Bi-Provincial Upgrader project near Lloydminster.

The Alberta Oil Sands Equity Chairman is Chairman of the Board of Directors of Syncrude Canada Ltd. He is also Alberta's government representative on the Lloydminster Bi-Provincial Upgrader Joint Venture Board, which has overall authority and responsibility to manage the business and affairs of the joint venture.

Figure A1
Alberta Oil Sands Equity Holdings

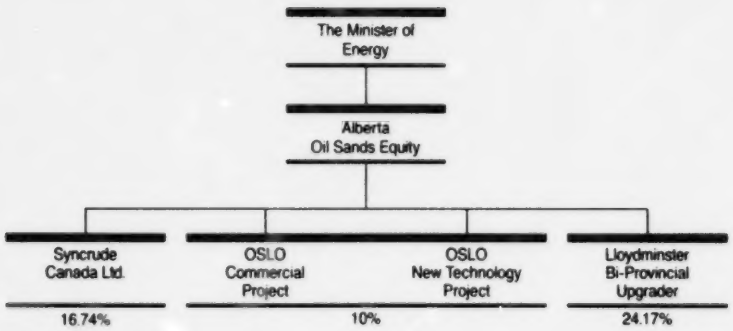
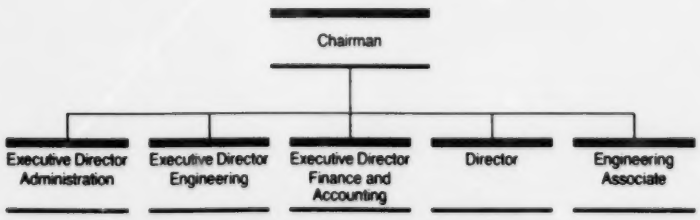


Figure A2
Structure of AOSE



Appendix 2
Major Projects

Syncrude

Background

The Syncrude oil sands project has steadily increased production levels since its start-up in 1978. During 1988-89 Syncrude produced an average of 153 000 barrels per day of synthetic crude oil (56.0 million barrels), well above the design capacity of 137 800 barrels per day. Increased production was due primarily to the start-up of the $685 million Capacity Addition Project (CAP) in September, 1988 which increased the design capacity by over 22 000 barrels per day (previous expectations were for 18 600 barrels per day), to 162 000 barrels per day.

The Province has a vested interest in the Syncrude project. Alberta, through Alberta Oil Sands Equity, holds a 16.74 per cent equity investment in the Syncrude project. Alberta also receives a Joint Venture Payment equal to 50 per cent of the projects deemed net profits in lieu of royalty. To date, Alberta has received over $1 billion in Joint Venture Payments from Syncrude since project start-up. The Syncrude project also provides over 4500 permanent jobs in the province.

In 1986, Alberta provided Syncrude with up to an $85 million loan to fund an Expansion Study to increase plant capacity by an additional 81 600 barrels per day at an estimated cost of $5.2 billion (in as spent dollars). The loan covered costs associated with research, design development and engineering specifications. The study, completed in March 1989, concluded that an expansion of approximately 30 million barrels per year of synthetic crude oil was optimal.

1988-89 Highlights

For the 1988-89 fiscal year, the Department advanced $36.1 million in expansion study funding. The study was completed in March 1989 and was under budget at $80.9 million.

Alberta Oil Sands Equity's investment in Syncrude reported a loss of $3.1 million for the fiscal year, compared to a profit of $44.1 million in the previous year. The loss is attributed to oil prices, a coker shutdown in February and March, and slightly increased operating costs due to Capacity Addition Program start-up costs. At March 31, 1989, Alberta's participation in the project was $511.9 million which consisted of net cash advances of $98.8 million and accumulated income of $413.1 million.

The OSLO Commercial Project

OSLO refers to the Other Six Leases Operation. The name comes from the other six leases owned by the original Syncrude partners. The OSLO consortium have identified one of these six leases, Lease 31 (about 60 kilometres north of Fort McMurray), as the best prospect for mining development. This lease contains 3.5 billion barrels of surface mineable bitumen, which is sufficient to support a 200 000 barrels per day plant for more than 50 years.

The OSLO Commercial Project is an integrated oil sands mining and upgrading operation on Lease 31. The project is expected to produce approximately 77 000 barrels per day of synthetic crude oil and to cost $4.1 billion dollars (in as spent dollars). It is expected to begin producing synthetic crude oil in 1997.

During the design and construction phase an estimated 22 000 person-years of direct labour will be required, with an expected peak construction force of 6 000 jobs. During operations this project is expected to create over 2 700 direct jobs.

Engineering necessary to provide the information for the owners to make a go/no go decision on the construction of the project is under way. This phase of the project is estimated at $140 million and will be completed prior to July 1, 1991.

Due to the long lead time and scale of investment of the OSLO project, participation from the Governments of Alberta and Canada was required to ensure that the project proceeded now to meet future energy objectives. On September 24, 1988, a Statement of Principles was signed between the OSLO Consortium and the Governments of Alberta and Canada. Completion of the binding agreements is in progress and current expectations are for these agreements to be completed early in

1990. The Governments of Alberta and Canada are offering a combination of loan guarantees, interest assistance, and financial incentives to share the project risk with companies. The Governments will receive a Net Profits Interest from the project, and Alberta will also receive a royalty as resource owner.

1988-89 Highlights

Department of Energy interests in OSLO in 1988-89 involved intensive negotiations with the Government of Canada and the OSLO Consortium. During these negotiations the Financing Mechanisms are accruing pending signing of the Binding Agreements.

Alberta Oil Sands Equity interests in the OSLO Commercial Project in 1988-89 involved Alberta's 10 per cent equity investment. This included intensive negotiations on both Binding agreements and Owner agreements as well as significant efforts on the planning and design of the Commercial Project. The equity investment has no profit/loss to report as of March 31, 1989.

Alberta Participation in OSLO

Financing Mechanism	Alberta Contribution
OSLO Development Incentive	$425 million — to be drawn at a rate of 12.5% of eligible capital costs until the maximum is reached.
Indexed Development Incentive	Up to $112 million — provides up to 2.8% of eligible capital costs, depending on the extent actual prices are below US$21/bbl (1988$).
Loan Guarantee	Up to $600 million — guarantee to all equity owners exclusive of Alberta Oil Sands Equity; guarantee secured by assets of the project.
Interest Assistance	
Pre-production	Up to $125 million — 37.5% of interest costs of owners on guaranteed loans.
Post-production	Up to $125 million — if prices after production start-up are below US$25/bbl(1988$) then up to 25% of interest payable will be covered.
Temporary Financing Facility	Up to $62.5 million — to cover cash flow deficiencies caused by debt servicing of guaranteed loans.

Return Mechanism	Level of Return
Net Profits Interest	Up to an 8 per cent net profits interest of project operating revenues will be earned once repayment of loan, interest assistance and the temporary financing facility has been made. The level of the NPI will be indexed for oil prices below US$30 per barrel. It will remain in place for 35 years.
Royalty	The royalty will commence at 1% of gross production, increasing every 24 months until it reaches a maximum of 5%. Royalties may be deferred during the pre-payout period in the event that prices are low. Any deferred royalties will be repaid, with 10% interest, by means of a 2% increment in the net revenue royalty rates following project payout. After Project Payout, the royalty will be the greater of 5% of gross production or 25% of net revenues. Two years after the guarantee loans, interest assistance and TFF have been repaid, Alberta's royalty will increase to the greater of 5% of gross production or 30% of net revenues.
Loan Guarantee Fees	A 0.5 per cent guarantee fee will be levied annually on any outstanding loan balances.
Interest Assistance Recovery	All interest assistance (up to $125 million pre-production and up to $125 million post-production) will be fully repaid by the Project Owners interest fee, after the guaranteed loan is repaid.

Lloydminster Bi-Provincial Upgrader

On September 2, 1988, the Governments of Canada, Alberta and Saskatchewan jointly signed a binding agreement with Husky Oil Limited to finance, build and operate an upgrader near Lloydminster. Each of the joint venturers will contribute to the $1.27 billion capital cost of the project in proportion to its participating interests. Alberta holds a 24.17 per cent interest in the project and will contribute $305 million.

This upgrader will encourage heavy oil development and upgrading in western Canada, where the resource is produced, rather than shipping jobs and incremental value down the pipeline to the consuming areas. The upgrader is designed to produce 46 000 barrels of high-quality synthetic crude oil per day. This upgrading capacity will increase market incentives for further development of heavy oil and bitumen production. The upgrader will have the capacity to convert Saskatchewan and Alberta heavy oil and bitumen into synthetic crude oil. Once the upgrader is on stream, it will create up to 1 800 permanent jobs both at the upgrader itself and at the crude oil recovery sites. Construction on the upgrader began in late 1988 and is proceeding on schedule. Project start-up is planned for the end of the third quarter of 1992, with full capacity reached by 1995.

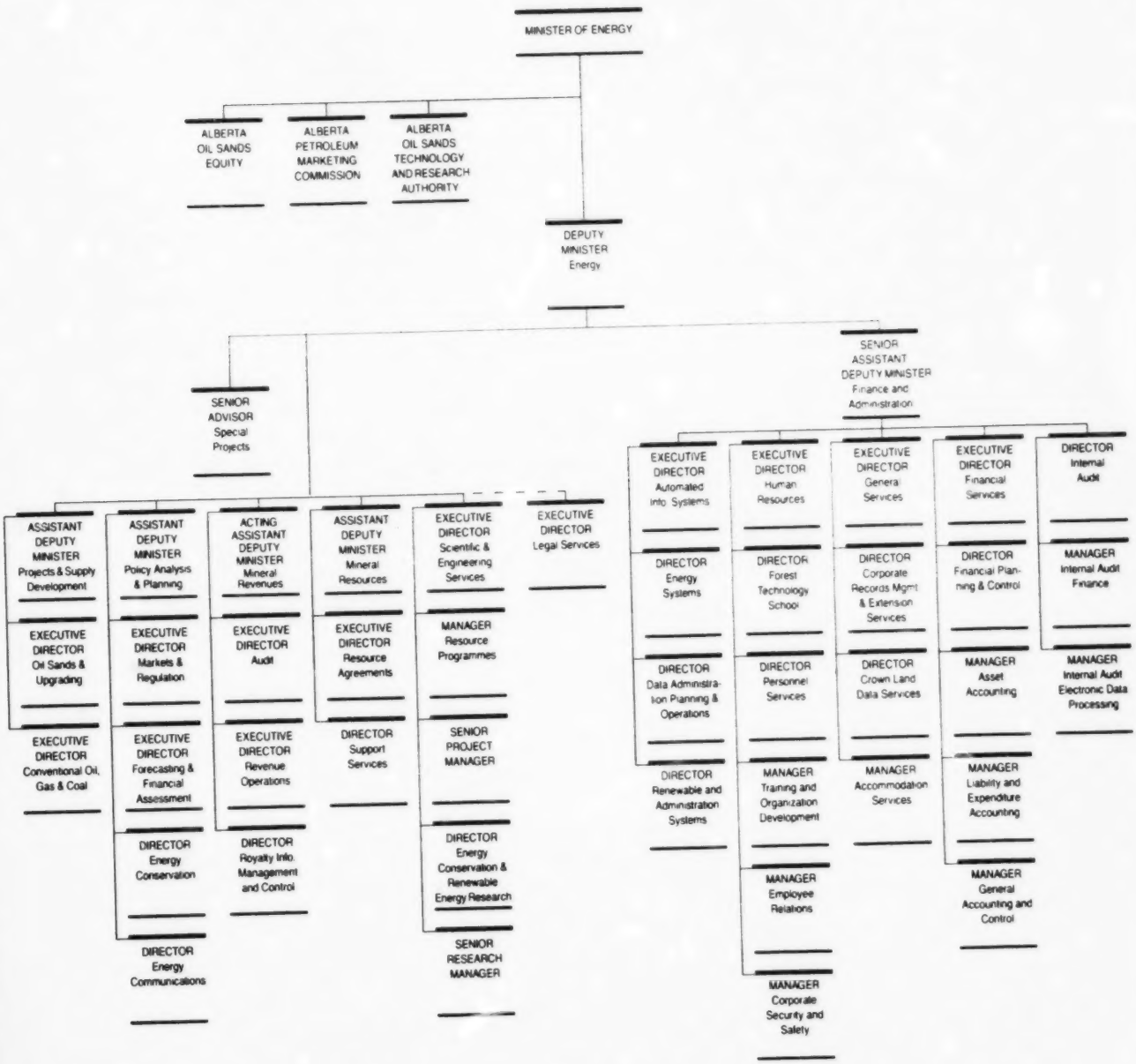
Husky will be the Construction Manager and also the operator of the upgrader. The Project will be managed by a 12-member Joint Venture Board to which each of the four owners has appointed three representatives. An official of Alberta Oil Sands Equity is one of three Alberta government representatives on the Joint Venture Board. Detailed agreements covering the construction and operation of the Upgrader are being negotiated between the Joint Venture Board and Husky.

1988-89 Highlights

The Department of Energy interests in 1988-89 involved information flow and monitoring the progress of the upgrader.

Alberta Oil Sands Equity interests in 1988-89 involved Alberta's 24.17 per cent equity investment in the upgrader. The equity investment had no profit/loss to report as of March 31, 1989.

Appendix 3
Department of Energy Organization Chart


MINISTER OF ENERGY
ALBERTA OIL SANDS EQUITY
ALBERTA PETROLEUM MARKETING COMMISSION
ALBERTA OIL SANDS TECHNOLOGY AND RESEARCH AUTHORITY
DEPUTY MINISTER Energy
SENIOR ADVISOR Special Projects
SENIOR ASSISTANT DEPUTY MINISTER Finance and Administration
ASSISTANT DEPUTY MINISTER Projects & Supply Development
EXECUTIVE DIRECTOR Oil Sands & Upgrading
EXECUTIVE DIRECTOR Conventional Oil, Gas & Coal
ASSISTANT DEPUTY MINISTER Policy Analysis & Planning
EXECUTIVE DIRECTOR Markets & Regulation
EXECUTIVE DIRECTOR Forecasting & Financial Assessment
DIRECTOR Energy Conservation
DIRECTOR Energy Communications
ACTING ASSISTANT DEPUTY MINISTER Mineral Revenues
EXECUTIVE DIRECTOR Audit
EXECUTIVE DIRECTOR Revenue Operations
DIRECTOR Royalty Info. Management and Control
ASSISTANT DEPUTY MINISTER Mineral Resources
EXECUTIVE DIRECTOR Resource Agreements
DIRECTOR Support Services
EXECUTIVE DIRECTOR Scientific & Engineering Services
MANAGER Resource Programmes
SENIOR PROJECT MANAGER
DIRECTOR Energy Conservation & Renewable Energy Research
SENIOR RESEARCH MANAGER
EXECUTIVE DIRECTOR Legal Services
EXECUTIVE DIRECTOR Automated Info. Systems
DIRECTOR Energy Systems
DIRECTOR Data Administration Planning & Operations
DIRECTOR Renewable and Administration Systems
EXECUTIVE DIRECTOR Human Resources
DIRECTOR Forest Technology School
DIRECTOR Personnel Services
MANAGER Training and Organization Development
MANAGER Employee Relations
MANAGER Corporate Security and Safety
EXECUTIVE DIRECTOR General Services
DIRECTOR Corporate Records Mgmt & Extension Services
DIRECTOR Crown Land Data Services
MANAGER Accommodation Services
EXECUTIVE DIRECTOR Financial Services
DIRECTOR Financial Planning & Control
MANAGER Asset Accounting
MANAGER Liability and Expenditure Accounting
MANAGER General Accounting and Control
DIRECTOR Internal Audit
MANAGER Internal Audit Finance
MANAGER Internal Audit Electronic Data Processing

Financial Statements

Financial Statements

Alberta Energy
Statement of Revenue
For the Year Ended March 31, 1989
(Unaudited)

	1988-89 ($000)	1987-88 ($000) (Restated)
Royalties		
Oil, Conventional and Synthetic, and Products	$ 957 088	$1 359 211
Natural Gas and Products	988 706	1 011 171
Coal and Other	15 204	7 564
	1 960 998	2 377 946
Crown Sales, Oil and Natural Gas Agreements	449 541	761 181
Rentals and Fees		
Oil and Natural Gas, and Synthetic Oil	73 995	74 329
Coal and Other	2 889	3 182
	76 884	77 511
Mineral Taxes	70 861	92 210
Crude Oil Export Charges	0	(240)
Expenditure Recoveries		
Alberta Petroleum Incentive Program	2 529	5 050
Other	618	3 400
	3 147	8 450
Miscellaneous	1 277	554
Gross Revenue	**2 562 708**	**3 317 612**
Less Incentive Programs		
Exploratory Drilling	402	714
Geophysical	178	259
Exploratory Drilling Assistance	0	195 773
Development Drilling Assistance	0	107
Geophysical Assistance	0	3
	580	196 856
Net Revenue	**$2 562 128**	**$3 120 756**

Prepared by General Accounting Branch
Financial Services Division
September 15, 1989

Alberta Energy
Statement of Expenditures
For the Year Ended March 31, 1989
(Unaudited)

	1988-89 ($000)	1987-88 ($000) (Restated)
Finance and Administration		
Financial Services and General Services	$ 3 459	$3 650
Automated Information Systems	1 907	2 162
Human Resources	1 129	1 126
Internal Audit	167	177
Communications	77	99
	6 739	7 214
Other Divisions		
Mineral Resources	7 475	7 147
Mineral Revenues	12 104	10 136
Policy Analysis and Planning	3 285	3 164
Scientific and Engineering Services	6 002	5 226
Projects and Supply Development	1 661	1 807
Alberta Petroleum Incentive Program	2 776	4 370
	33 303	31 850
Executive Offices	917	947
Special Warrants and Special Programs		
Syncrude Oil Sands Plant Expansion	36 113	35 468
Mineral Resources Wainwright Military Reserve	750	—
Mineral Resources Compensation Payments	—	7 339
Small Producers Advisory Services	—	363
	36 863	43 170
Total Expenditures	**$77 822**	**$83 181**

Prepared by General Accounting Branch
Financial Services Division
September 27, 1989

Notes to the Financial Statements
For the Year Ended March 31, 1989

Note 1 — Comparative Figures
The 1987-88 figures have been restated where necessary to conform to the 1988-89 presentation and department reorganization.

Note 2 — Statement of Revenue
Costs of $247 507 ($413 102 in 1987-88) incurred by Alberta Petroleum Incentive Programs on behalf of Alberta Energy have been eliminated from the transfer from the General Revenue Fund.

Note 3 — Statement of Expenditures
Alberta Oil Sands Equity, Alberta Oil Sands Technology and Research Authority and Alberta Petroleum Marketing Commission are not included in the Statement of Expenditures.